in place and did not even show normal mobility in the upright posture—a range of motion which varies from two to five centimeters in the average individual. This is of great aid in the diagnosis of obscure conditions such as cortical renal abscess, perinephritic abscess, and perinephritis. These are often incorrectly diagnosed and improperly treated because they have been confused with other diseases such as malaria, typhoid fever, and influenza.

Doctor Stevens' paper is of real value. It will aid the physician to bear in mind pathologic lesions of the kidneys and ureters when making an abdominal examination. It also emphasizes the important point that diseases might concomitantly exist in the kidneys and ureters and in the abdominal organs. As the result of this education, the pendulum is swinging the other way and an increasingly number of patients are daily referred to the urologist for diagnosis, and this specialist must be well up in the diagnosis of abdominal lesions in order not to confuse them with those of the upper urinary tract.

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Wirt B. Dakin, M. D. (606 Chapman Building, Los Angeles).—It has been my observation that the best informed internists and general surgeons are the first to secure the aid of the urologist in many of their more obscure and complicated cases with symptoms of diseases of organs adjacent to the upper urinary tract. They lose little time in informing these patients that it is advisable to have the services of a urologist to help with the differential diagnosis. The urologist, in turn, by working in coöperation with a good x-ray department, will soon have reliable data to offer that will confirm or contradict any findings submitted by the internist or surgeon.

Doctor Stevens' statement that in about 33 per cent of all patients entering the hospital with uncertain diagnoses urologic investigation is indicated is well worth remembering.

Unnecessary examinations of any nature are to be avoided, but we must not forget that a patient may have more than one ailment and the urologic examination may reveal that some pathologic condition in the genito-urinary tract needs attention before anything else is attempted.

Faulty interpretation of certain intravenous pyeloureterographic findings is mentioned by the author. This was anticipated by the urologists when uroselectan was first given to the medical profession, and especially when certain commercial laboratories began to use it. An occasional mistake in diagnosis is overlooked by our colleagues. At least some errors could be avoided if more diagnostic data were available. This is not always the physician's fault. Frequently, in one way or another, the patients do not coöperate.

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Louis Clive Jacobs, M. D. (Four-Fifty Sutter Street, San Francisco).—Dr. William E. Stevens' thesis is of extreme importance. It emphasizes the rapid progress which has taken place in recent years in the differential diagnosis and treatment of surgical pathology of the urogenital tract and adjacent organs. The demand for more accuracy in the diagnosis of diseased organs by the internist and allied specialists has resulted in the development of the specialty of urology.

The author's paper clarifies some intricate problems in differential diagnosis, and demonstrates a practical knowledge of physical clinical signs as well as a specialized understanding of urinary pathology.

The modern urologist must be competent to recognize urologic pathologic changes and to differentiate them. He has not only been trained in the use of the cystoscope, but can combine, when the occasion arises, his vesical instrumentation with the ureteral catheter and x-ray. He should be sufficiently conversant with human anatomy and physiology for purposes of orientation.

It is not unusual to see patients suffering from abdominal pain, associated with muscle rigidity, who are submitted to major operations such as appendectomies, hysterectomies, cholecystectomies, disregarding examinations of the urological tract. There is often muscular rigidity present in patients chronically ill for a long period of time due to the stricture of the ureter. They immediately respond when the ureter has been dilated and free drainage from the kidney restored.

The x-ray has been a valuable aid, both in diagnosis and therapy, especially when combined with the ureteral catheter or used in conjunction with retrograde or intravenous pyelography. Plain roentgenograms should be taken before resorting to pyelography, as occasionally some pathologic lesion is obscured by a shadow-producing drug.

Cystograms are invaluable for the study of vesical and extravesical pathologic changes in both sexes.

On account of the confusion at times in making an accurate differential diagnosis of appendicitis from ureteral pathologic changes or an abdominal tumor from a renal tumor, we must utilize every diagnostic procedure at our command. Every diagnosis made should be correlated by proper laboratory work.

ORGANIC SOMATIC DISEASES — ASSOCIATED WITH NERVOUS AND MENTAL DISTURBANCES*

By Julian M. Wolfsohn, M. D.
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Discussion *by Thomas G. Inman, M.D., San Francisco; Samuel D. Ingham, M. D., Los Angeles.*

THE relationship of organic somatic disease to the psychoses has long been sought. Hippocrates, two thousand years ago, stated that "the brain is an organ of mind; that any insane state is the result of the disturbance of this organ." He described many instances of this relationship to prove his theory, but it fell into the discard during the many subsequent centuries with but an occasional adherent. It was not really until one hundred years ago that mental disease was studied systematically, and since then we find that one by one the etiology of abnormal mental states was discovered and properly classified. This obviously tends to simplify the conception of psychiatry as a whole, and links it more closely to other better understood divisions of medicine, namely, medicine proper and surgery.

SCOPE OF THIS DISCUSSION

It is not the purpose of this paper to enter into an exhaustive treatise on the development of psychiatry, but to try to bring forward the experiences of others and myself with psychoses related to somatic disease and finally to theorize on the probable mechanisms at work.

Fifty-five years ago Maudsley, speaking of body and mind, said: "The immediate business which lies before anyone who would advance our knowledge of mind, unquestionably, is a searching scrutiny of the bodily conditions of its manifestations in health and in disease. The brain is the seat of the psyche, but the functions of mind are dependent upon the whole body and the harmonious interaction of all its parts."

Formerly it was taught "mens sana in corpore sano," which implies a healthy mind dwelt in a

* Read before the Neuropsychiatry Section of the California Medical Association at the sixtieth annual session, San Francisco, April 27-30, 1931.

healthy body. We all agree that a diseased body can possess a healthy mind, and vice versa. Many persons with apparently healthy bodies, as far as we can determine, possess disordered minds of varying degrees and kinds including the neuroses, psychoses, et cetera. It is to the future that we look for discoveries in biochemistry and biophysics to elucidate conditions which are dependent on hereditary and acquired bodily defects. Just because they have not already been found, is no argument that they do not exist.

Today mental disturbances are being attacked not only along biologic, biophysical, and biochemic lines, but also, and to a much less extent than a decade or two ago, from the psychologic aspect.

Bernard Hart suggests that "causes now called psychical may ultimately be capable of expression in anatomical and physiological language." The mere process of formulating an idea which in turn demands "attention" implies a physicochemical change in some part of the brain. If there are normal brain cells and normally functioning association systems, the individual is adjudged mentally normal. If otherwise, we say he is suffering from a neurosis, a psychosis, or other abnormal mental state. One should thus start with the theory that purely organic conditions are the determining factors in all abnormal mental states.

In these days when the stress of modern life of this machine age is of increasing importance, we should expect, and in fact we do find, a proportionate increase in abnormal mental states produced in many cases primarily through psychical channels, and secondarily, the ulterior effects producing endocrine dystrophies, gastro-intestinal intoxications, chronic infections, and other conditions. These etiological agents for some mental disorders are accepted by all. How these factors enter into the problem will be discussed later.

Monrad Krohn says of the so-called functional mental disorders: "The only thing we know is that they, as a rule, are unaccompanied by organic change so gross that they can be discovered by the means at present at our disposal. Until we find reliable methods of studying the prenissl stages of cell degeneration, we have obviously no right to deny the possibility of organic change."

We all accept the organic origin of such mental disorders as the presenile and arteriosclerotic psychoses, the infective, exhaustive, and toxic psychoses; but it is the more subtle functional mental disorders in which an explanation of the processes causing the disorder is necessary.

Dr. Henry Cotton of Trenton, and others, have preached for years that organic causes have a remote influence on cerebral cells.

Cotton claims to have effected cures in 87 per cent of his cases by removing foci of chronic sepsis which he was able to locate in septic teeth, tonsils, and colons. His remarkable results have not been so successfully repeated by other workers, but everyone accepts the importance of his tenets.

With this important subject in mind the writer has selected from a large series six cases of organic somatic disease, which when removed the associated mental symptoms rapidly disappeared, and the patients have remained symptom free for at least six years. The possible explanation for these results, which no doubt can be duplicated by others, will be attempted after the exposition of the following cases.

Note: In the cases reported below, all laboratory work including urine, stool, Wassermann, basal metabolism, blood count, x-rays, including the skull and, when indicated, the gastro-intestinal system, were reported normal in every instance.

REPORT OF CASES

CASE 1.—Manic depressive psychosis, manic phase, in a young woman eighteen years of age. Neuropathic family history. This patient was always sensitive, made friends easily, but her feelings were readily hurt. Not inclined to worry. Her past history was uneventful.

The onset of her psychosis appeared rather suddenly with a marked motor and psychic restlessness which evolved into a maniacal state. She became delusional, would lie for hours on her bed with arms stretched in the form of a cross, draped herself with flowers and ornaments, and then would suddenly tear her hair and pace up and down her room for hours talking to imaginary people, etc. Her condition, in spite of the usual treatments, remained more or less constant for one year, when, during an abdominal examination, she evinced great pain on deep pressure over the right lower abdominal quadrant. There had been no abdominal complaints at any time previously.

At operation there was found an old walled-off retrocecal abscess containing four ounces of thick malodorous pus from a previously ruptured retrocecal appendix, no doubt of long standing and which must have been present for much longer than one year. Within two weeks of operation, without any other form of treatment, the patient recovered her mental faculties and has been well to date, a period of ten years.

* * *

CASE 2. — Manic depressive psychosis, depressed phase in a woman twenty-nine years of age. One child living and well. Family and past histories uneventful, except that the patient for a few years prior to onset of present illness liked to be by herself, was morose, and occasionally complained of pains preceding the menstrual period. The onset of her illness was indefinite. She became more morose, suffered from insomnia, lost interest in life, imagined she had done many indiscreet things for which she was now being persecuted. There was only partial insight. During the four years in which she was constantly in this depressed state, she had attempted to destroy herself three times, besides breaking a thermometer purposely and swallowing some of the glass. At this time physical examination was quite negative, except for large, swollen, tender ovaries, worse on the right side.

At operation several cysts, measuring two inches in diameter, and many smaller cysts were removed from the ovaries. The patient convalesced normally, and without other treatment returned to her home three weeks later. Her mental state has been quite normal during the past six years. There has been, however, a tendency to easy exhaustion only.

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CASE 3.—Psychasthenia in an intelligent man, sixty years of age. This patient for ten or twelve years was irritable, suffered from obsessions, fears of crowds, closed places, and from easy fatigue. Examinations had never disclosed any physical abnormalities. Psychotherapy had been tried on several occasions for prolonged periods. Temporary relief only was obtained.

On examination the only abnormal finding was a very large prostate gland, hard on palpation over the right, and rather succulent on the left. Very little residual urine was found. No dysuria. The prostate was removed finally, and eight weeks later the patient returned home and has been, to all intents and purposes, mentally stable during the past seven years.

* * *

Case 4.—Manic depressive psychosis with melancholia and confusion in a woman, fifty-six years of age. This patient claimed never to have been sick in her life until one year after her menopause, at the age of fifty-three. She was always lively and considered the life of the party socially—not depressed or sensitive. Family history and past histories unimportant, except for chronic constipation.

Between fifty-three and fifty-four years of age she became gradually peevish and irritable, had some insomnia, and "bad breath" was complained of. She began to shun society, much to the surprise of her friends. She lost interest in things she formerly loved to do—would not read, and would sit for hours looking into space and appearing quite confused. Her speech was reduced practically to monosyllables. Food became very distasteful. Only slight relief was obtained by the usual methods adopted for mental cases of this kind. This patient was placed in a sanitarium.

On examination the patient exhibited the melancholic habitus. Physical examination was negative, except for large septic protruding hemorrhoids. These were removed and five weeks later all of her mental symptoms disappeared, and she has returned to a modified social life which has kept her quite normal and happy during the past six years.

* * *

Case 5.—Manic depressive insanity, depressed phase, in a young woman twenty-seven years of age. This patient was a school teacher, inclined to be always overscrupulous. Rather decided in her opinions. Inclined to brood, but had had no need of medical attention until she was twenty-five and one-half years of age. Gradually began to tire easily, and suffered from insomnia. Her school work was too arduous, her pupils trying. She began to brood and suffered from vague abdominal symptoms. Would cry at the slightest cause, and would suffer from waves of depression.

In one and one-half years, according to her statement, "I have seen very few hours of sunshine."

On examination the only positive findings were six devitalized infected teeth, and buried infected tonsils, which were removed; the teeth first and the tonsils two weeks later. After an interval of one month she volunteered the information that she felt well enough to be without further medication, or medical care, and has been mentally well for the past six years.

* * *

Case 6.—Neurasthenic state, severe, with hypochondriasis in a young man of twenty-four, who for eight years had been a sufferer from marked gastric distress, acid eructations, coated tongue, capriciousness in food selections, headaches, burning sensation of the skin, and easy fatigue. Patient would wake up tired, and had a rather pessimistic outlook on life. His hands and feet were always cold and clammy, even on hot days, and his heart "throbbed" on the slightest exertion. His previous history was unimportant, except for the fact that he was always nervous and worrisome.

On examination the positive findings included a fine rapid tremor of his cyanotic, cold, clammy hands. An enlarged soft thyroid gland, and large imbedded tonsils, the right one of which when pressed showed the presence of a deep collection of greenish fluid pus with bad odor. These tonsils were removed, and x-ray treatment was applied to the thyroid gland. In three months, during which time the patient received no other treatment than that which he had taken previous to the operation, he had lost practically all of his gastric and vasomotor symptoms. He gained twenty-two pounds in weight, and during the past eight years has not had need of treatment for his previously incapacitating condition.

COMMENT

The symptoms presented by patients, reported on Cases 2, 3, and possibly 4, were primarily caused by somatic nonseptic processes located in and about the pelvis, which is so richly innervated by the vegetative nervous system. The constant morbid increased pressure on these nerves produces an irritation or perverted stimulation instead of normal, healthy impulses. Varied amounts and kinds of irritation, in susceptible individuals, results, in turn, in a conditioned reflex of abnormal character, which affects not only the whole vegetative nervous system, but also the endocrine system and ultimately the neurones of the central nervous system itself.

We must accept as axiomatic that causes remote from the central nervous system cannot produce nervous or mental symptoms directly. The above mentioned causes produce a chronic fatigue state which lowers the resistance of the nerve cells in question to the point when toxic effects originating within the cell itself, or from toxins arising outside the cell, take place.

The relationship of infected foci in patients reported as Cases 1, 5, and 6 to the mental symptoms can just as readily be accepted. Cotton and others have detailed numerous such recoveries. Anatomical lesions in organs other than the nervous system, especially "septic foci are known to change the metabolism, contaminate the blood with abnormal products which disturb the chemical exchange and nutrition of the brain cells." As Cotton says, "We may get a direct action on the cerebral elements by the morbid agents carried directly through the circulation—toxins or microorganisms."

From these cases we can see that the symptoms, sometimes of a profound character, even though lasting for twelve years, may not be associated with permanent changes in the nerve cells. However, in other cases the changes in the brain may be permanent, so that repair after the elimination of the exciting cause, whether of toxic or other nature, is no longer possible, and accounts for some of the incurable cases.

In all the cases cited, mental distress, such as mental shocks, chronic worry, and disappointments were present, preceding and including the psychotic episode. It is hard to believe that ideational factors produce the nervous symptoms directly, but that they bring into being changes in the endocrine system which, in turn, affect the vegetative nervous system, and finally the cortical neurones, which produce the sensations, stimuli, or ideas which we interpret in the patient as symptoms of his disorder. The mechanism may also be explained by a lowering of the bodily resistance due to the above changes, so that the patient's immunity to infection disappears, and what was a latent process suddenly becomes active and attacks the cortical cells, as Cotton has pointed out.

One does not believe it to be straying far from facts to state that, though a psychogenic factor may be the "last straw" in precipitating a psychosis in a susceptible individual, the real origin of the morbid condition is an intracellular biochemical disturbance of the cortical neurones, endocrine dystrophy, or disturbed metabolism of tissues not yet suspected of complicity, which may or may not produce permanent or transient changes in the cortical nerve cells. This explanation may account for some cases of manic-depressive insanity in remission, or in certain other periodic psychoses or neuroses. To prove this the pathologist and biochemist will have the last word.

In other words, we can consider that diseases of special organs, especially about the pelvis, and general ill health from lowered vitality, precede and become the cause of morbid states of the brain which end in neuroses or psychoses.

CONCLUSIONS

1. It is our duty as physicians to practice general medicine in its broadest sense in order to see whether or not any bodily condition is present which can act as a cause or contributing factor in the production of abnormal psychic states. In many cases the patient is unaware of any physical cause which may have a bearing on his mental state.

2. Six cases of mental disturbance, including the neuroses and psychoses, are presented in which the symptoms were present for long periods. Shortly after the removal of the offending physical causes, a remission, which in each patient has persisted for over six years, was produced.

3. We will advance further and more quickly toward control and limitation of mental disturbances if we study from all angles at our disposal the physical influences and also, to a less extent, the subtle moral influences which play a rôle in their production.

4. Insanity is a bodily disorder, a disease of the brain in which certain changes have taken place. This implies a departure from healthy physiologic action. In consequence of these changes there is a more or less prolonged disturbance of mind.

5. Disease of any part of the organism, including the brain, may be the cause of insanity. In such cases the mental disturbance will not be manifested until the specific cells of the brain controlling thought and ideation are affected.

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DISCUSSION

THOMAS G. INMAN, M. D. (2000 Van Ness Avenue, San Francisco).—With the main argument advanced by Doctor Wolfsohn there should be no disagreement. The mentally disturbed patient is entitled to the same careful medical survey accorded to individuals whose complaints suggest the presence of somatic disease. Infectious processes, circulatory disturbances, endocrine dysfunctions and painful or irritative disorders are frequently found in association with grave mental derangement. Whether the latter depends solely upon the physical disease or is only set free by it, is beside the question. It is sufficient for the moment that the individual be returned, if possible, to his former condition of health.

When we consider the specific effect of certain known chemical substances upon the mental functions, it is easy to imagine that deleterious materials produced within the body might also act in a definite and specific manner. Mind, as we know it, is a product of brain function and, to a large extent, the mental qualities exhibited by an individual depend in some way upon the anatomic construction and physiologic function of that individual's brain. It is to be expected, then, that noxious substances produced within the body may so interfere with the functions of the brain that it is no longer able to act in an orderly fashion.

But if the fairly constant effects upon cerebral function caused by hyper- and hypothyroidism be excepted, and the toxic, arteriosclerotic and luetic psychoses be excluded, there still remain a group of psychoses and neuroses the causes of which seem to lie entirely within the ideational domain of mind. To determine the true nature of the psychologic disturbance is the first objective of the neuropsychiatric examination. If it is possible to differentiate between a primary and secondary mental disorder the patient may be saved much valuable time and expense, ill advised operative interference may be prevented, and suitable treatment instituted at once.

An inherent weakness in psychiatric diagnosis lies in the lack of reliable working models, psychologic constants, or fixed mental patterns the recognition of which will surely lead to a diagnosis of the malady in question. To some extent modern psychologic studies have seemed to make the vision a trifle clearer and may eventually bring about a better understanding of the nature and causes of the psychoses. Until that time careful elimination of somatic disease along the lines suggested by Doctor Wolfsohn will be in order.

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SAMUEL D. INGHAM, M. D. (727 West Seventh Street, Los Angeles).—The case histories presented by Doctor Wolfsohn emphasize the importance of various pathologic conditions remote from the brain as etiologic factors in the production and maintenance of abnormal mental states. Although everyone will probably agree with this point of view, the subject still justifies the emphasis. Patients who are stigmatized with the diagnosis of mental disturbance too frequently do not receive adequate diagnostic attention. Doctor Wolfsohn touched but did not enlarge upon the subject of the theory of a physical basis for psychoses in general. During the present century the list of so-called functional nervous conditions has diminished, due to the recognition of the organic bases of their existence. Paresis, Parkinson's disease, chorea, tics, torsion spasm, paramyoclonus and dystonia are now recognized as organic diseases. Of the psychoses it may be stated that dementia praecox, manic-depressive insanity, the paranoid and hysteroid psychoses, are about the only forms not definitely attributable to organic disease. Further advances in our knowledge of the life activities of and the disturbances affecting the nerve cell in terms of biochemistry and physics will further reduce the list of "functional" nervous diseases. This knowledge will also facilitate our intelligent treatment of these conditions.

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DOCTOR WOLFSOHN (Closing).—I want to thank Doctors Inman and Ingham for their discussions of my paper, which make me feel that I have merely brought again to the attention of the members of this section a subject that needs to be further threshed out.

If we accept mental patients and treat them as such, not putting our best efforts toward bringing out any factor which might tend to even exaggerate the mental symptoms or displace the nervous system and make it more susceptible to any noxious process going on in the body, we are not advancing at the same rate as those who are treating patients in general medicine and surgery.

My spoken admonition in the treatment of mental patients is: "Go the limit of medical and laboratory examinations before treating the patient himself from the mental angle."